

REMARKS

The specification has been amended to reflect the 371 status. In addition, the claims have been amended to remove the multiple dependencies to reduce the PTO filing fee.


Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached pages are captioned "**Version with markings to show changes made**".

Favorable action on the merits is solicited.

Respectfully submitted,

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CLAIMS

1. An isolated and purified human nuclear protein comprising the amino acid sequence of SEQ ID NO: 1.

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2. A polynucleotide encoding the protein of claim 1, which comprises the nucleotide sequence of SEQ ID NO: 2.

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3. The polynucleotide of claim 2, consisting of the nucleotide sequence of SEQ ID NO: 2.

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4. A human genomic DNA fragment with which a polynucleotide of SEQ ID NO:3 or a partial contiguous sequence thereof hybridizes under stringent conditions.

5. (Amended) An expression vector expressing the polynucleotide of claim 2 ~~or 3~~ in *in vitro* translation or in host cells.

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6. (Amended) A transformed cell producing the human nuclear protein of claim 1, which is ~~transformants with the expression vector of claim 5.~~

7. An antibody against the human nuclear protein of claim 1.

a cell transformed with an expression vector which expresses a polynucleotide encoding the protein of Claim 1, and which comprises the nucleotide sequence of SEQ. ID NO. 2.

polynucleotide

DESCRIPTION**A Human Nuclear Protein having a WW Domain and****A Polynucleotide encoding the Protein**

⁵ *this application is a 371 of PCT/JP00/08253 filed November 22, 2000.*

Technical Field

TOGETHER 22/63350

The present invention relates to a novel protein having a WW domain
10 and existing in human cell nuclei, a polynucleotide encoding this protein, and
an antibody against this protein. The protein and antibody of the present
invention are useful for diagnosis and therapy of various diseases, and the
polynucleotide of the present invention is useful as a probe for genetic diagnosis
or as a genetic source for gene therapy. Further, the polynucleotide can be
15 used as a genetic source for large-scale production of the protein of this
invention.

Background Art

20 The term "nuclear protein" is a generic name of proteins functioning in
cell nucleus. In nucleus there are genomic DNA serving as a plan of organism,
and nuclear proteins are involved in replication, transcriptional regulation etc.
of these genomic DNA. Typical nuclear proteins whose functions have been
25 revealed include a transcription factor, a splicing factor, an intranuclear
receptor, a cell cycle regulator and a tumor suppressor. These factors are
closely related not only to life phenomena such as development and
differentiation but also to diseases such as cancers (New Medical Science,
"Tensha No Shikumi To Shikkan" (Mechanism of Transcription and Diseases) ed.
30 by Masahiro Muramatsu). Accordingly, these nuclear proteins are expected as